

Abstract

Color reproducibility and noise

characteristic are improved. An imaging device having a hybrid RGBYC color filter using a primary color system RGB filter and a complementary color system YC filter is composed. Four G filters that directly relate to resolution and that is close to a luminance signal that human eyes sense are arrayed in a checker shape so that the number of the G filters is four times larger than the number of filters of each of the other colors. An array shown in Fig. 10A is composed of low resolution rows (G, R, G, and B) and high resolution rows (C, G, Y, and G) that are alternately arrayed in each line. When signals are read if exposure times are varied for individual lines, the signals that are read can easily have a wide dynamic range. An array shown in Fig. 10B has two Gs, a low sensitivity color, and a high sensitivity color in each line and each row. Thus, the luminance difference is small in the horizontal direction and the vertical direction. Thus, the reading method in the array shown in Fig. 10B is slightly complicated than that in the array shown in Fig. 10A. However, since the special interpolation characteristic of the array shown in Fig. 10B is advantageous, a smooth gradation can be easily represented.